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[Open Access](#)**TOPSIS-Based Service Arbitration for Autonomic Internet of Things** (Article)Ashraf, Q.M.^a, Habaebi, M.H.^b, Islam, M.R.^b^a Telekom Malaysia Research and Development, Cyberjaya, Malaysia^b Department of Electrical and Computer Engineering, University Islam Antarabangsa, Kuala Lumpur, Malaysia[View references \(30\)](#)

Abstract

Recent research on Internet of Things (IoT) has focused on the adaptation of the autonomic computing paradigm to make IoT self-sufficient. Service arbitration is one aspect which can greatly benefit from the adoption of the autonomic theory. Instead of allowing all deployed devices to be active, only a selected set of devices can be utilized to provide a particular service. This paper proposes a dynamic service arbitration scheme for this purpose. The approach for the service arbitration scheme is based on the technique for order preference by similarity to ideal solution (TOPSIS) algorithm. This method supplements existing autonomic frameworks with the aim to minimize user intervention as well as imparting self-configuration in the system. The analysis through TOPSIS can be extended to any number of permutations and combinations of alternatives and system policies. © 2013 IEEE.

Author keywords

Autonomy; Internet of Things; Networks; Scalability; Self-Configuration; TOPSIS; Wireless Sensor

Indexed keywords

Engineering controlled terms: Computation theory; Internet; Networks (circuits); Scalability; Wireless sensor networks

Autonomic computing paradigms; Autonomy; Internet of Things (IOT); Permutations and combinations; Self configuration; Technique for order preference by similarity to ideal solutions; TOPSIS; Wireless sensor

Engineering main heading: Internet of things

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